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09/751,332	12/28/2000	Darwin A. Engwer	3239P069	7669

8791 7590 01/11/2007  
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EXAMINER
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ELALLAM, AHMED

ART UNIT	PAPER NUMBER
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2616

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

09/751,332

Applicant(s)

ENGWER ET AL.

Examiner

AHMED ELALLAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 37-40 and 46-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 37-40, 46-54, 57-63 and 66-68 is/are rejected.
- 7) ☒ Claim(s) 55, 56, 64, 65 and 69 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/01/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This communication is responsive to RCE filed on 12/01/2006.

Claims 37-40, 46-69 are pending.

#### ***Information Disclosure Statement***

1. The information disclosure statement filed April 09/2001 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered.

#### ***Claim Objections***

2. Claim 46 is objected to because of the following informalities: claim 46 depends from itself. It is assumed that claim 46 is meant to depend from claim 37. Appropriate correction is required.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 37 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 5, 7, 12 and 15 of U.S. Patent No. 7,154,854 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 37, 55, 64, and 69 are broader in scope in that it doesn't recite several features. For example the difference between claim 37 and claims 1, 3, 5, 7, 12 and 15 of the Patent is that claim 37 doesn't specify among other things, the request to send (RTS) and clear to send (RTS/CTS), changing the fragmentation threshold in response to changes within the wireless transmission medium based on a finite time duration for data packet transmission taking in account a size of each data packet and a data rate for transmission of each data packet, and the

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divisional factor being (i) decremented when the transmission error factor is greater than an upper threshold, (ii) incremented when the transmission error factor is less than a lower threshold and (ii) maintained constant when the transmission error factor is less than the upper threshold and greater than the lower threshold.

Claim 37 of the instant application merely broadens the scope of the claims 1, 3, 5, 7, 12 and 15 of the Patent by eliminating the elements and their functions of the claims. It has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. *In re Karlson*, 136 USPQ 184 (CCPA). Also note *Ex parte Rainu*, 168 USPQ 375 (Bd.App.1969); omission of a reference element whose function is not needed would be obvious to one skilled in the art.

5. Claim 38, 39, 47 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 5, 7, 12 and 15 of U.S. Patent No. 7,154,854 in view of Fischer et al (US 5,889,772). Hereinafter referred to as Fisher.

Regarding claim 38, the difference between claim 38 and claims 1, 3, 5, 7, 12 and 15 of the patent is that claim 38 further specify that the transmission error factor is based on a number of acknowledgement packets received in response to the transmitted packets.

Regarding claim 39, the difference between claim 39 and claims 1, 3, 5, 7, 12 and 15 of the patent is that claim 38 further specify the transmission error factor is

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based on a number of errors occurring in the transmission of the one or more data packets.

As to claims 38 and 39,

Fischer discloses where determining the transmission error factor comprises transmitting the one or more data packets, and determining the transmission error factor based on a number of acknowledgement packets received in response to the transmitted one or more data packets (the monitor counts the number of failures to receive a ACK frame from each destination address after the frame was transmitted, and keeps this number as the BER fails count (claim 38) and the transmission error factor depends on a number of errors occurring in the transmission of the one or more data packets for a given time period (claim 39), see col 11 lines 20-60 and 60-67; also see col 12 lines 1-7.

It would have been obvious to a person of ordinary skill in the art, at the time the invention was made to specify the method of determining the transmission error factor of the patented claims as indicated by Fisher so that the method /system of claims 1, 3, 5, 7, 12 and 15 would be implemented using widely known techniques of error factors determination.

As to claim 47, the difference between claim 47 and claims 1, 3, 5, 7, 12 and 15 of the patent is that claims 46 specify that the maximum fragmentation threshold is a maximum data packet size for transmission over a backbone network.

However, Fischer discloses the pre-determined fragmentation is related to a maximum packet size for transmission over a wireless network ("wireless local area network"; col 5 lines 1-15).

It would have been obvious a person of ordinary skill in the art, at the time the invention was made to specify the maximum fragmentation threshold being that of the wireless medium so to provide no fragmentation when interference in the wireless medium is at minimal level.

6. Claim 46 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 5, 7, 12 and 15 of U.S. Patent No. US 5,889,772 in view Bird et al (US 6,657,954). Hereinafter referred to as Bird.

Regarding claim 46, the difference between claim 46 over claims 1, 3, 5, 7, 12 and 15 of the patent is that claim 46 specify the fragmentation threshold is a maximum data packet size for transmission over a backbone network of a wireless network formed by the access point and the one or more associated wireless units.

However, Bird discloses a wireless network that uses data flow thresholds to control the transmission of data in the network. The wireless network is coupled to a wired backbone network (figure 2; the wireless connection is connected to workstations connected through a wired network; for example see col 5 lines 50-65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the wireless system of claims 1, 3, 5, 7 and 12 to utilizes fragmentation thresholds to transmit data through a wired network, as taught by Bird.

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The motivation would be the ability for a broader and more accessible system that can communicate globally with many other networks, (see Bird in column 5).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 40, 51, 60 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 40, 51, and 60, the specification as original filed does not describe the feature of "transmission error factor is a value based on (i) a number of transmission errors occurring successively multiplied by a first weighting factor and (ii) a number of transmission errors occurring sporadically multiplied by a second weighing factor". The specification as originally filed does not disclose a number of transmission errors occurring successively multiplied by a first weighting factor and a number of transmission errors occurring sporadically multiplied by a second weighing factor.

***Claim Rejections - 35 USC § 103***



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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 48-50, 52-54, 57-59, 61-63, and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al (US 5,889,772) in view of Sindhushayana et al, (US 6,064,678). Hereinafter referred to as Fisher and Sindhushayana respectively.

Regarding claims 48, 57, 66, and 67, Fischer discloses a method (col 5 lines 11-14), means (col 5 lines 34-46), and logic circuit (inherent; the controller of figure 6 must require logic to execute) of automatically adjusting a fragmentation threshold for data transmissions between an access point ("WLAN controller 100, figure 6; col 7 lines 33-46) and one or more associated wireless units (Wireless LAN stations; col 7 lines 40-46) via a wireless medium associated with a wireless network system including a wired backbone network, comprising:

determining a transmission error factor indicative of errors occurring in the transmission of one or more data packets between said access point and said one or more associated wireless units (calculate a ratio of packet-fails count to packet-transmitted (BER) between transmission and destination station; For example see col 12 lines 6-20)., and

automatically adjusting said fragmentation threshold based on said transmission

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error factor (Based on the BER ratio, the monitor and adjust unit 112 adjusts the fragmentation threshold level; col 12 lines 14-18), where the one or more data packets each have a finite time duration (the BER is based on the time intervals of packets transmitted and acknowledgement messages received. The importance on timely reception of these packets signifies a time duration for each packet; col 11 lines 20-31),

Fischer discloses the transmission error factor being weighted value with transmission errors occurring successively having a different weighting than transmission errors occurring sporadically (the fragmentation threshold is adjusted based on the bit error rate factor of the current data transmission between 2 stations. A burst of concentrated transmission errors would thereby increase the bit error rate more so than sporadic transmission errors; col 12 lines 7-20),

Fisher does not explicitly disclose translating a desired finite time duration for transmission into the fragmentation threshold based on a data transmission rate of at least one data packet. (Examiner interpreted this limitation in accordance with the specification in which it is stated that the time duration of a data packet is given by the size of the packet divided by the data rate, see page 19, lines 28-30, thus such limitation is interpreted to mean that the fragmentation threshold is chosen based on a predetermined data transmission rate).

Sindhushayana discloses choosing packet lengths (fragmentation threshold) in accordance with data transmission rates. See column 2, lines 55-65.

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made enhance the fragmentation threshold selection of

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Fisher with a corresponding data transmission rate as taught by Sindhushayana so that the optimal fragmentation threshold can be used (optimal data packet length). The advantage would be the ability to maximize the throughput of the system by choosing the optimal packet length for each subscriber in transmitting data at an appropriate data rate. See Sindhushayana, column 3, lines 14-29.

Regarding claims 49 and 58, Fischer discloses where determining the transmission error factor comprises transmitting the one or more data packets, and determining the transmission error factor based on a number of acknowledgement packets received in response to the transmitted one or more data packets (the monitor counts the number of failures to receive a ACK frame from each destination address after the frame was transmitted, and keeps this number as the BER fails count; col 11 lines 20-41 and 60-67; also see col 12 lines 1-7).

Regarding claims 50, and 59, Fischer discloses where the transmission error factor depends on a number of errors occurring in the transmission of the one or more data packets for a given time period (the monitor counts the number of failures to receive a ACK frame from each destination address after the frame was transmitted, and keeps this number as the BER; col 11 lines 20-60 and 60-67; also see col 12 lines 1-7).

Regarding claims 52, 61 and 68, Fischer discloses where the transmission error factor is a weighted value with transmission errors occurring successively having a greater weighting than transmission errors occurring sporadically (the fragmentation threshold is adjusted based on the bit error rate factor of the current data transmission

between 2 stations. A burst of concentrated transmission errors would thereby increase the bit error rate more so than sporadic transmission errors; col 12 lines 7-20)

Regarding claims 53, 54, 62 and 63, Fischer discloses where automatically adjusting the fragmentation threshold comprises

comparing the transmission error factor to an upper threshold, and decreasing the fragmentation threshold if the transmission error factor is above the upper threshold (Fischer's embodiment allows the fragmentation threshold to be dynamically adjusted to maximize the WLAN throughput for the current operating conditions. The fragmentation threshold is adjusted according to the bit error rate ratios between a transmitting station and a receiving station. If the BER reaches a certain higher value, the monitor and adjust unit 112 will lower the fragmentation threshold until the packets have a lower rate of error; for example see col 12 lines 7-20 and 42-55);

comparing the transmission error factor to a lower threshold, and increasing the fragmentation threshold if the transmission error factor is below the lower threshold if the BER reaches a certain lower value, it is inherent the monitor and adjust unit 112 will raise the fragmentation threshold until the packets have an acceptable rate of error to maximize throughput; col 3 lines 65-67 and col 4 lines 34-38).

#### ***Allowable Subject Matter***

9. Claims 55, 56, 64, 65 and 69 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

10. Applicant's arguments filed 5/5/2006 with regard to claims 37-40,46-54,57-63 and 66-68 have been fully considered but they are not persuasive:

***Claim Rejections under 35 USC § 112:***

Applicants Amendment to claims 40, 51, 60 don't overcome the rejections under 112 1<sup>st</sup> rejections. The specification as originally filed doesn't describe multiplying by a first weighting factor and/or (ii) a second weighing factor for the determination of the transmission factor.

As to independent claims 48, 57, 66 and 67:

Applicants argue that a prima facie case of obviousness has not been established. Applicants submitted that Fisher nor Sindhushayana, alone or in combination, suggest the limitation of the *"transmission error factor being a weighted value with transmission errors occurring successively having a different weighting than transmission errors experienced by a first group of data packet occurring sporadically"* Emphasis added.

Examiner respectfully disagrees, based on the specification, the limitation that Applicants relied upon is merely given as an example as recited in the summary: "the transmission data error can depend greater on transmission errors occurring successively (i.e. clusters of transmission errors) than on errors occurring sporadically", page 7, lines 12-15, and on page 17 lines 22-page 18 line 6 " With regard to step 404,

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there are many algorithms that an AP can use to determine the transmission error factor for the purpose of adjusting the fragmentation threshold. For instance, the transmission error factor can be a percentage of data transmission errors that occurred within a given time period. This method, however, may not be desirable because data transmission errors can be common in a system. **A more effective method of determining a transmission error factor is to weigh transmission errors that occur successively (i.e. clusters of transmission errors) greater than those errors that occur sporadically.** If transmission errors occur successively, this indicates that there may be a problem, such as a temporary increase in RF interference, in the wireless medium. Other methods of determining a transmission error factor can be based on an empirical modeling of the wireless channel. There are many other methods of determining a transmission error factor for the purpose of adjusting the fragmentation threshold."

The passage from the specification (in bold) can be interpreted such that a greater transmission error factor is determined for successive errors, while a smaller transmission error factor is determined for errors occurring sporadically. Such feature is present in the teaching of Fisher, Fisher discloses the fragmentation threshold is adjusted based on the bit error rate factor of the current data transmission between 2 stations. A burst of concentrated transmission errors would thereby increase the bit error rate more so than sporadic transmission errors; col 12 lines 7-20; in addition, the fragmentation threshold allocation of Fisher takes account of successive and sporadic errors because of the counting of the occurrence of successive errors that clearly result

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in higher number of attempt and that is reflected in the ratio of DA-BER fail count to the DA-BER count. That is a ratio for successive errors is different than a ratio for sporadic errors such a ratio is used to adjust the fragmentation threshold. Therefore the adjustment of the threshold in dependence of the ratio of Fisher imply that when errors occurs and are counted provide for a "transmission error factor" greater (i.e. weighted) than a transmission error factor for sporadic errors. Therefore contrary to Applicant assumption, Fisher teaching alone explicitly discloses the disputed limitation above.

Applicant alleged that Fisher doesn't teaches such limitation by pointing to col. 11, lines 42-47: "adjust unit 112 may calculate the average number of attempts...failures" wherein the emphasis on the word average conveys a smoothed, non- responsive, non-differentiating determination of the error factor.

Examiner in response note that Fisher discloses a step of fragmentation where it doesn't uses the average, such teaching is indicated on col. 12, lines 7-20:

"The monitor and adjust unit 112 may calculate a ratio of the DA.sub.-- BER.sub.-- fails count incremented in step 324 to the DA.sub.-- BER.sub.-- attempts count incremented in step 320 to determine an adjustment that should be made to the existing fragmentation threshold level for a given destination address to modify the fragmentation threshold level in accordance with the current bit error rate between the transmission station and the station corresponding to that destination address".

This passage does teach the limitation of *"transmission error factor being a weighted value with transmission errors occurring successively having a different weighting than transmission errors experienced by a first group of data packet occurring sporadically"* as explained above.

Examiner believes, given the broadest reasonable interpretation of the claim limitations, the art rejection above is proper.

**Conclusion**


11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See Form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, To Doris can be reached on (571) 272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A.E

  
DORIS H. TO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600



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Examiner

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